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Understanding the relationship between schematic beliefs, bullying, and unusual experiences in 8-14 year olds

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Abstract

Background: Cognitive models of adult psychosis propose that negative schematic beliefs (NSBs) mediate the established association between victimisation and psychotic symptoms. In childhood, unusual, or psychotic-like, experiences are associated with bullying (a common form of victimisation) and NSBs. This study tests the mediating role of NSBs in the relationship between bullying and distressing unusual experiences (UEDs) in childhood.

Method: Ninety-four 8-14 year olds referred to community Child and Adolescent Mental Health Services completed self-report assessments of UEDs, bullying, and NSBs about the self (NS) and others (NO).

Results: Both NS and NO were associated with bullying (NS: $r = .40, p < .001$; NO: $r = .33, p = .002$), and with UEDs (NS: $r = .51, p < .001$; NO: $r = .43, p < .001$). Both NS and NO significantly mediated the relationship between bullying and UEDs (NS: $z = 3.15, p = .002$; NO: $z = 2.35, p = .019$).

Conclusions: Children's NSBs may mediate the adverse psychological impact of victimisation, and are appropriate treatment targets for young people with UEDs. Early educational intervention to reduce negative appraisals of the self and others may increase resilience to future adverse experiences and reduce later mental health risk.

Keywords: Psychotic-like experience, PLE, childhood, life event, cognitive therapy, cognitive model.

1.0 Introduction

Over the last decade, childhood psychotic-like, or unusual, experiences (UEs) have attracted increasing research interest [1,2]. UEs are phenomenologically comparable to the symptoms of psychosis, but occur in the absence of a clinical psychotic disorder. They include altered perceptions, hallucinations, and beliefs that may not fit with those of others, including paranoid thoughts.

General population prevalence rates of UEs in childhood vary between 6-73% depending on the method of assessment and the age of participants [1-4]. Although the majority of UEs are transient and short-lived [5], their persistence may comprise a risk factor for later psychopathology [6], including psychotic disorders [7-10].

The United Kingdom National Institute for Health and Care Excellence (NICE) guidelines for the treatment of psychosis in children and young people [11] recommend psychological treatment not only for children and young people with psychosis, but also for those with subclinical psychotic symptoms (i.e. UEs), that are causing them emotional distress or impacting adversely upon their daily life. Intervention is advised both to reduce current distress and, potentially, to reduce the likelihood of future mental ill health. As effective psychological intervention requires an understanding of the biopsychosocial mechanisms that drive UE severity and persistence, the NICE guidelines recommend research to determine the appropriate targets of therapeutic change.

Cognitive models of adult psychosis delineate the interactions between biopsychosocial vulnerability factors and the cognitive, emotional and social factors

that maintain psychotic illness [12, 13]. Recent research has associated these same factors (emotional disturbance, cognitive biases, negative life events, and schemas) with the severity of childhood UEs [14-16].

Victimisation experiences are highly predictive of adult psychosis, and are implicated in the development and maintenance of both voices and paranoia, in part through their contribution to the development of negative schematic beliefs (NSBs) about the self and others [17-21]. In childhood and adolescence, bullying is a common form of victimisation, and has been linked with a range of childhood psychopathology, including UEs [22-29].

Emerging research in general population samples suggests that childhood NSBs may mediate the impact of bullying upon general childhood psychopathology [30], and proposes low self-esteem as a partial mediator of the impact of bullying upon childhood non-clinical psychotic symptoms [31]. However, no study to date has investigated the mediating role of the full range of schematic beliefs implicated in psychosis (i.e. beliefs about others, as well as beliefs about the self) in the impact of bullying upon unusual experiences associated with distress or adverse life impact (UEDs) in a sample of young people in clinical services.

Further delineating these relationships will help to identify the appropriate therapeutic targets of early psychological interventions and inform refinements to treatment protocols.

This study was designed to test whether NSBs mediate the relationship between victimisation experiences (bullying) and UEDs, in a sample of 8-14 year olds referred to community Child and Adolescent Mental Health Services (CAMHS) with emotional and/or behavioural problems. We hypothesised NSBs to be a mediator due to their effect on the interpretation of future adverse/anomalous experiences.

Our hypotheses were as follows:

- 1) Negative schemas about the self (NS) will be associated with, and will mediate the relationship between, bullying and UEDs.
- 2) Negative schemas about others (NO) will be associated with, and will mediate the relationship between, bullying and UEDs.

2.0 Method

2.1. Participants and Recruitment

Children between the ages of 8 and 14 years were recruited as part of the Coping with Unusual Experiences Study (CUES, ISRCTN 13766770) from waiting lists across three community Child and Adolescent Mental Health Services (CAMHS) in South London. The CAMHS teams accepted referrals of young people with a broad spectrum of emotional and behavioural problems, which often did not meet criteria for formal diagnosis of a mental health condition. Teams carried out an initial triage assessment of all referrals; young people who did not require urgent or specialist intervention were placed on the team's waiting list. Letters of invitation to participate in the study were sent to parents of all young people on the waiting lists. For those families expressing an interest in participating, informed consent/assent was obtained from the parent and young person following a face-to-face meeting with a researcher

from the team. Exclusion criteria were: clinical needs necessitating referral out of the CAMHS team (e.g. learning disability, neurological condition, or serious mental illness); limited understanding of English language, precluding the family's ability to give informed consent and complete assessments; plans to move away from the team's catchment area during the next six months (the duration of participation in the CUES trial).

2.2. Measures

2.2.1 Unusual Experiences Questionnaire [2]

This nine-item self-report measure was developed to identify UEs in a community sample of children [2]. The questionnaire includes five items adapted from the Diagnostic Interview Schedule for Children [32], which were previously found to be predictive of schizophreniform disorder [9]. A further four items were added to assess a greater range of UEs [2,3]. Items are rated for Conviction or endorsement (0 not true, 1 somewhat true, 2 certainly true), Distress ('How much has it upset you?' 0 not at all, 1 only a little, 2 quite a lot, 3 a great deal), Impact ('How much has it made things hard at home or school?' 0 not at all, 1 only a little, 2 quite a lot, 3 a great deal) and Frequency over the past two weeks (0 not at all; 1 only once; 2 2-4 times; 3 5 or more times). A distressing UE (UED) was identified as present if a child rated an endorsed item ≥ 1 on associated Distress or Impact. UED severity was calculated as the total score for all UEDs on Conviction, Frequency over the past two weeks, Distress, and Impact. Item scores range from 0-11 and can be summed across the scale to generate an overall UED severity score ranging from 0-99.

2.2.2. *Bullying* [33]

The victimisation at school items from the Middle Years Development Instrument [33] were used with adaptations simplifying the response options, to assess participants' experiences of bullying within the current school year. The items ask whether individuals have experienced bullying in a number of different ways. These cover physical bullying ('for example, someone hit, shoved, or kicked you, spat at you, beat you up, or damaged or took your things without permission'), verbal bullying ('for example, someone called you names, teased, embarrassed, threatened you, or made you do things you didn't want to do'), social bullying ('for example, someone left you out, excluded you, gossiped and spread rumours about you, or made you look foolish), cyber bullying ('for example, someone used the computer or text messages to exclude, threaten, embarrass you, or hurt your feelings'), or any other forms of bullying. Items are rated for frequency from 0 (never) to 4 (often). For the current study, items were totalled to provide an overall bullying score ranging from 0-25.

2.2.3. *Brief Core Schema Scale* [BCSS; 34, 16]

The BCSS was developed to assess schematic beliefs in psychosis, and consists of four sub-scales, each of six items, evaluating positive self, positive other, negative self, and negative other beliefs [34]. Each item comprises a belief statement (e.g. 'Other people are unkind'), which is firstly rated by the individual as 'YES/NO', and then, if 'YES', is further rated for strength of belief on a four-point Likert scale from 0 (not at all) to 4 (I believe it totally). The BCSS has good psychometric properties in young people, validated on a subsample of participants from CUES [16].

2.3. Procedure

Participants completed CUES baseline assessments (including the measures for the current study) over two or three individual meetings with support from a researcher, taking breaks as necessary. The administration order was varied to maintain engagement and interest, but UEs were usually assessed later in the battery to allow for rapport to develop between researcher and young person.

2.4. Data analysis

The Statistical Package for Social Sciences, version 20, was used for all statistical analyses [35]. The majority of the variables were not normally distributed, and therefore non-parametric tests were employed when necessary. To test the first part of each hypothesis, the association of NS (Hypothesis 1) and NO (Hypothesis 2) with bullying and UEDs, Spearman's correlational analyses were performed.

To test the second part of each hypothesis, the mediating effects of NS (Hypothesis 1) and NO (Hypothesis 2) in the relationship between bullying and UEDs, we employed the Sobel Test of mediation effects [36, 37]; using regression coefficients (and standard errors) derived from linear regression analysis of the independent variable (bullying) as a statistical predictor of the mediator (NS or NO, respectively), and of the mediator as a statistical predictor of the dependent variable (UED severity; see Figure 1). Despite deviation from the normal distribution, the necessary assumptions of a linear model were met, justifying the use of regression coefficients [38].

3.0 Results

3.1. Demographic and Clinical Information

A total of 110 participants were recruited as part of the CUES study, however 16 young people did not complete the relevant measures for this study and could not be included. The remaining 94 participants (56 male, 38 female) had full data; clinical and demographic characteristics are shown in Table 1.

3.2. Hypothesis 1: Negative schemas about the self will be associated with, and will mediate the relationship between, bullying and UEDs.

NS was positively correlated with both bullying ($r = .40, p < .001$), and UEDs ($r = .51, p < .001$). In the mediation analysis, NS was associated with bullying ($\beta = .53, df = 93, p < .001$) and UEDs ($\beta = 1.71, df = 93, p < .001$), and mediated the relationship between bullying and UEDs ($z = 3.15, p = .002$).

3.3. Hypothesis 2: Negative schemas about others will be associated with, and will mediate the relationship between, bullying and UEs.

NO was positively correlated with both bullying ($r = .33, p = .002$) and UEDs ($r = .43, p < .001$). In the mediation analyses, NO was associated with bullying ($\beta = .63, df = 88, p = .004$), and UEDs ($\beta = .92, df = 88, p < .001$), and mediated the relationship between bullying and UEDs ($z = 2.35, p = .019$).

4.0 Discussion

4.1. Summary of findings

The mediating role of NSBs in the association of bullying with childhood UEDs was formally tested in a clinically referred sample of young people aged between 8 and 14 years.

In line with our hypotheses, negative schemas about both the self, and about others, were associated with bullying and UEDs. Moreover, both NS and NO mediated the relationship of bullying with UEDs. Findings are consistent with the cognitive models of adult psychosis which propose that victimisation experiences (including bullying) lead to the formation of negative schematic beliefs about the self and others, which then influence the interpretation of future adverse and anomalous experiences, and thus contribute to the development and maintenance of adult psychosis [12,13,17,19]. Importantly, our study extends previous research considering negative beliefs about the self, by demonstrating a parallel role for negative beliefs about others, which have particular relevance to the development of psychosis.

4.2. Implications of findings

Our evidence supporting the mediating role of NSBs further strengthens the recommendation that NSBs should be included as a treatment target in cognitive therapies for young people with UEDs, particularly as schemas are still developing at that age [39] and are therefore more likely to be amenable to change than in adulthood. Furthermore, the mediating role of NSBs would support the hypothesis that early educational interventions to reduce negative views of the self [40] and of others might promote resilience to future victimisation experiences and thereby reduce future mental health risks, including the risk of psychotic illness.

4.3. Limitations

The findings are based on a clinically referred group of young people and may not be replicated in other populations. Young people had assented (with the consent of a parental responsibility holder) to participate in a specific project, and therefore the

sample may not be fully representative of clinically referred youth. Victimization events were self-reported and may therefore have been subject to schematic bias in young people with NSBs, potentially confounding relationships. As we employed a cross-sectional design, inferences about the temporal relationship between bullying and UEs cannot be substantiated, and causal conclusions cannot be drawn, without further longitudinal research.

4.4. Conclusions

Findings support a mediating role for negative schematic beliefs in the influence of victimization experiences on distressing childhood unusual experiences. Interventions to reduce current distress and adverse impact of childhood UEDs should include a focus on NSBs. Early preventative interventions, reducing negative views of the self and others may promote resilience to future adverse experiences and thereby reduce future mental health risk.

Disclosure of Interest

The authors declare that they have no conflict of interest.

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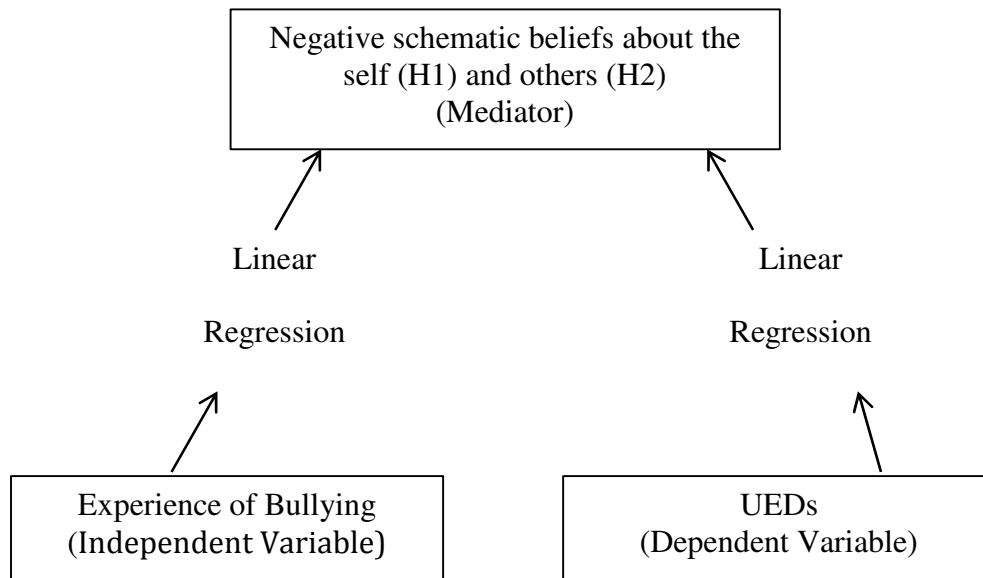
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Figure 1: Sobel test calculations to test the mediator role of negative schematic beliefs in the relationship of bullying with distressing unusual experiences



Key: H1: Hypothesis 1; H2: Hypothesis 2; UEDs: distressing unusual experiences

Table 1: Clinical and demographic characteristic of participants (n=94)

Variable (Possible Range)	Mean (SD)	Obtained Range
Age in years (8-14)	11.2 (1.9)	8-14.9
Bullying (0-25)	3.4 (3.2)	0-12
UEDs (0-99)	13.1 (15.9)	0-76
Negative Self (NS) (0-24)	3.4 (4.3)	0-23
Negative Others (NO) (0-24)	8.3 (6.6)	0-24
Ethnicity	n (%)	
<i>Black/Minority Ethnic (BME)</i>	44 (46.8%)	
<i>White British/Irish (Non-BME)</i>	50 (53.2%)	

Key: UEDs: distressing unusual experiences; SD: standard deviation.